SERVICE MANUAL

TENSAI
INTERNATIONAL

HI-FI STEREO AMPLIFIER
MODEL
TA-2030

CONTENTS

SPECIFICATIONS	1
PROTECTION CIRCUIT	1
DESCRIPTION OF EXPLODED VIEW	1
BLOCK DIAGRAM	2
EXPLODED VIEW	3
SCHEMATIC DIAGRAM	4.5
TRANSISTOR VIEW	6
P.C. BORD AND PARTS LIST	6.7.8

SPECIFICATIONS

Amplifier section

Continuous power output	4 ohms	:	2x35W
at 1KHz both channels driven	8 ohms	:	2x25W
T.H.D. at 1W	0.1%		
at rated output	0.2%		
Power bandwidth	20—40000Hz		
Frequency response	10—50000Hz		
Damping factor	50		
Input sensitivity	Phono	:	2.5mV
	Mic	:	2.5mV
	Aux	:	160mV
	Tape	:	160mV

Cross talk	1KHz	:	60dB
	10KHz	:	40dB
S/N ratio	Phono	:	70dB
(Unweighted)	Mic	:	65dB
	Aux	:	85dB
Input over load	120mV		
Tone control	100Hz	:	±10dB
	10KHz	:	±10dB
Loudness	100Hz	:	10dB
	10KHz	:	6dB
Filter	High	:	7dB
	Low	:	7dB

PROTECTION CIRCUIT

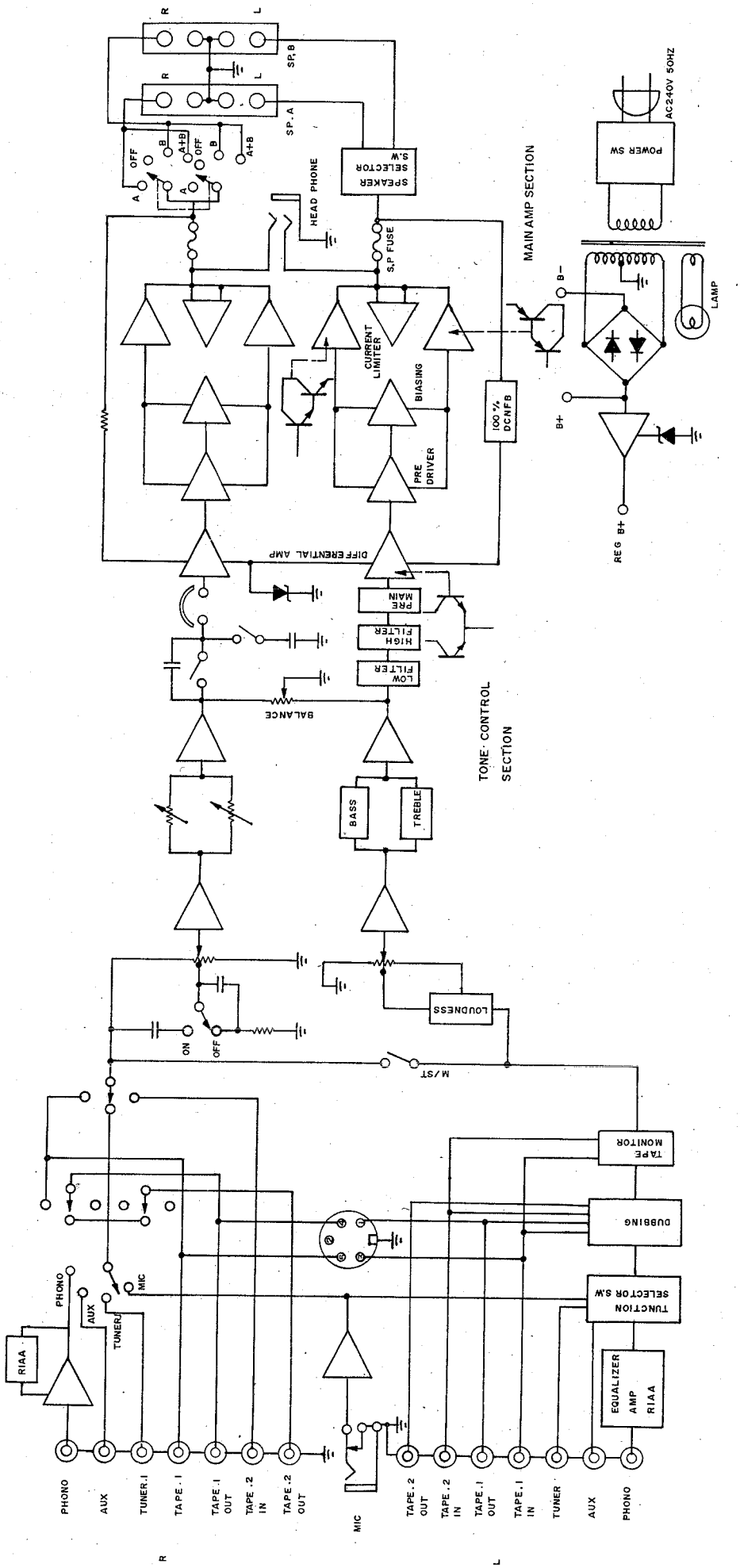
* Current Limiter "L"

This circuit is designed to protect the speaker and power transistor from damage when the over current is flowed to power transistor by shorting the output or overload.
If the over current to R551, R552 and the voltage drop across the resistors more than turn on voltage of Q506 and Q508 then these transistors are turned on and the input of Q504, Q509 is shunted.
Hence this circuit protects the power transistor and speaker from damage by limiting the over current.

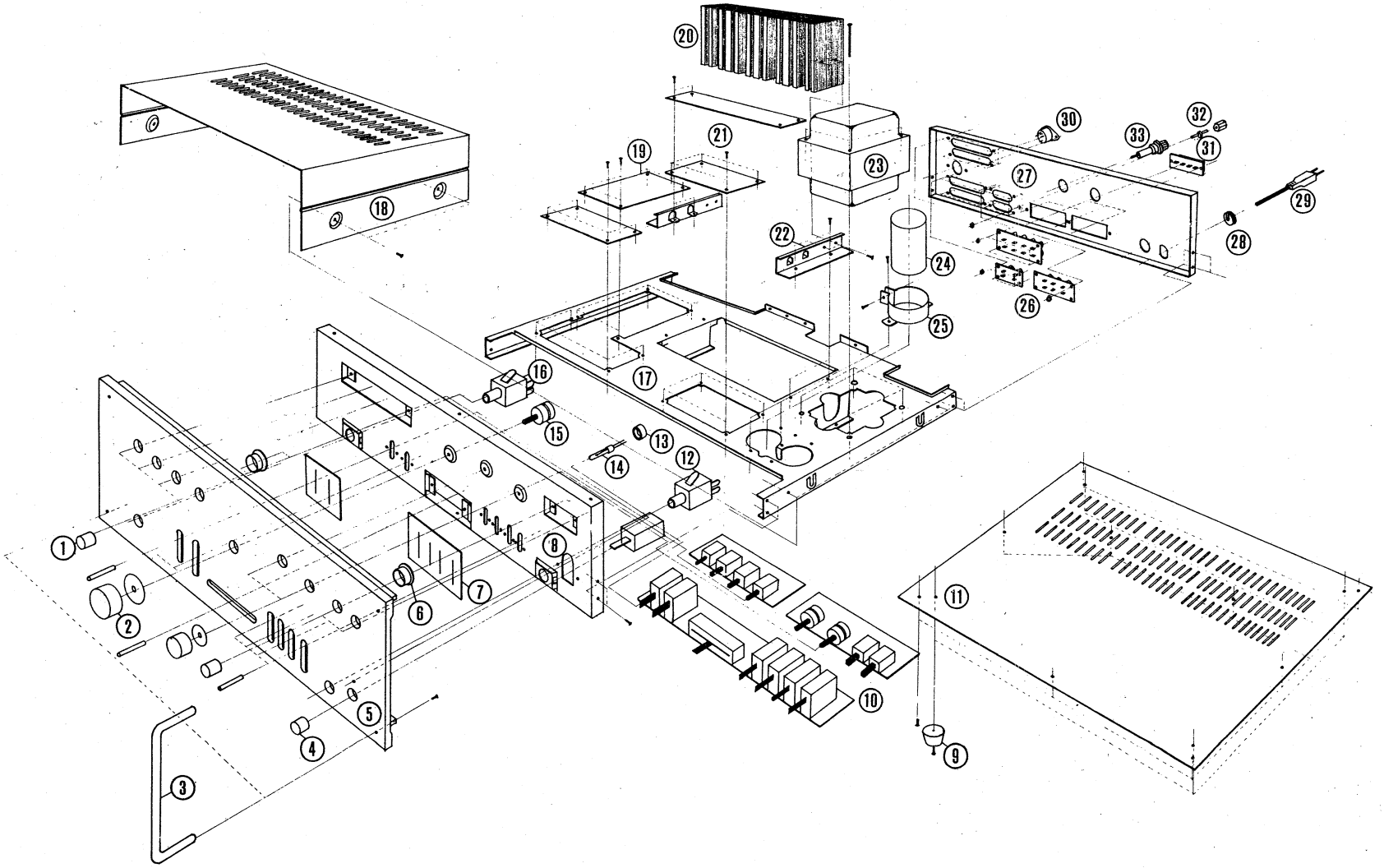
Description of Exploded View

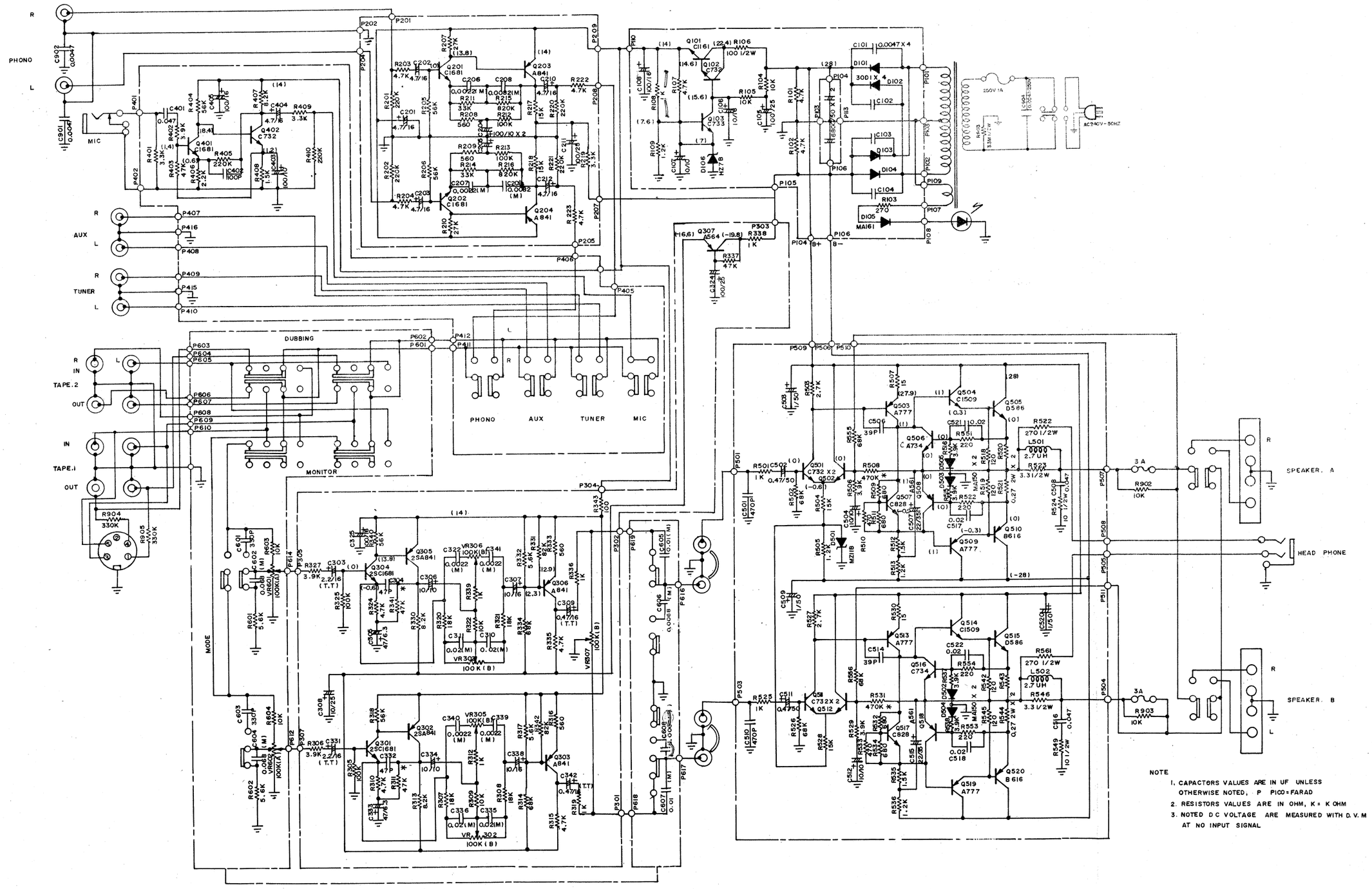
Ref. No.	Parts Name	Part No.
1)	Knob for Push	22-009
2)	Knob for Volume	22-528
3)	Handle	38-001
4)	Knob for Push Power	22-020
5)	Front Panel	20-024
6)	Bezel for Push	40-002
7)	Felt for Lever	80-402
8)	Front Chassis	10-022
9)	Rubber Foot	40-301
10)	P.C. B for Switch	
11)	Bottom Cover	13-023
12)	Phone Jack	51-402
13)	LED Holder	31-504
14)	LED (Red)	51-705
15)	Volume	70-001-25-41
16)	Mic Jack	51-401
17)	Master Chassis	11-011
18)	Steel Cabinet	71-506
19)	P.C. B	
20)	Heat Sink	80-309
21)	P.C. Bord	
22)	B.K.T. for Heat Sink	32-005, 32-004
23)	Power Transformer	72-006
24)	Electric Capacitor	
25)	Retaining Clip	
26)	P.C.A. Connector 4p, 6p, 8p	51-202, 51-208, 51-209
27)	Back Chassis	12-027
28)	Cord Stopper	40-503
29)	AC Cord	60-301
30)	Din Connector 5p	51-301
31)	Speaker Terminal	51-001
32)	System Ground	51-962
33)	Fuse Holder	50-401

BLOCK DIAGRAM



EXPLODED VIEW

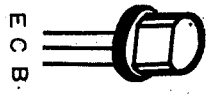



PHONO
R
L
MIC
AUX
TUNER
DUBBING
TAPE.2
TAPE.1
IN
OUT
MONITOR
MODE
PHONO
AUX
TUNER
MIC
SPEAKER. A
SPEAKER. B
HEAD PHONE
AC240V-50HZ
NOTE
1. CAPACTORS VALUES ARE IN UF UNLESS OTHERWISE NOTED, P PICO=FARAD
2. RESISTORS VALUES ARE IN OHM, K= K OHM
3. NOTED DC VOLTAGE ARE MEASURED WITH D.V.M AT NO INPUT SIGNAL

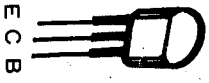
TRANSISTOR VIEW

2SA 777
C 1509

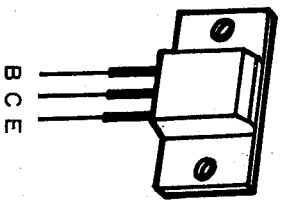
2SC 1166



2SC 1681
C 732
C 733
C 734
A 841
A 561



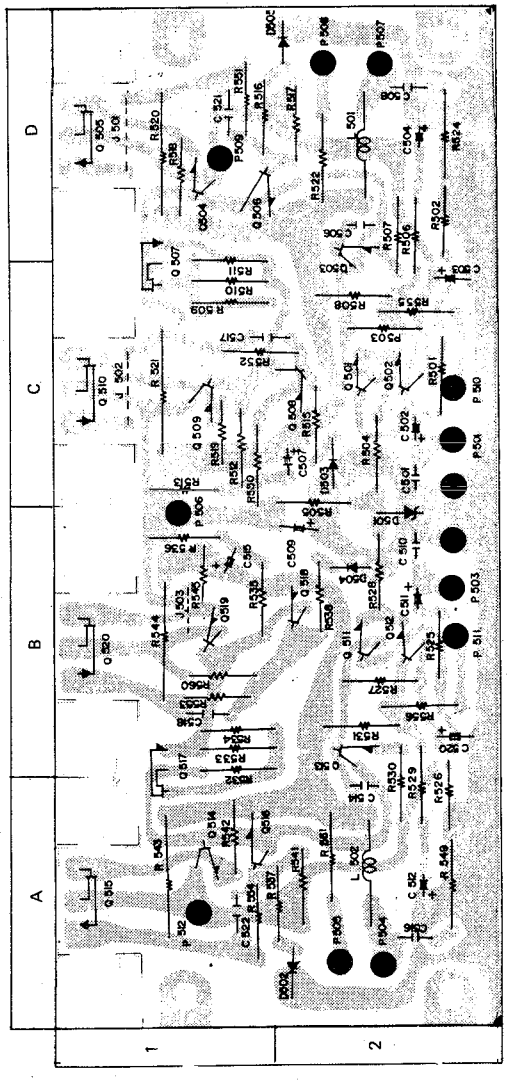
2SA 564



2SD 586
B 616

P.C.B AND PARTS LIST

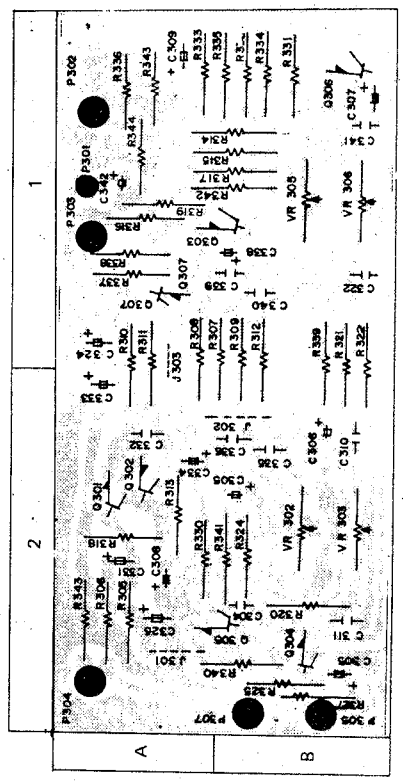
Main Amp B.D.	S1000A
Pre Amp B.D.	S1099B
EQ B.D.	S1008K
Mic And SW. B.D.	S1093D
SW. B.D.	S1092B
Supply B.D.	S1094D



S1000A Main Amp B.D.

Symbol	Description	Location
R501	1KΩ ± 5% ¼W	2C
R502	68KΩ "	2D
R503	27KΩ "	2C
R504	15KΩ "	2C
R505	1.2KΩ "	2C
R506	3.9KΩ "	2D
R507	15Ω "	2D
R508	470KΩ "	2C
R509	680Ω "	1C
R510	470Ω "	1C
R511	680Ω "	1D
R512	1.5KΩ "	1C
R513	1.2KΩ "	1C
R515	3.9KΩ "	2C
R516	3.9KΩ "	1D
R518	120Ω "	2D
R519	120Ω "	1D
R520	0.27Ω ± 5% 2W	1C
R521	0.27Ω "	1D
R522	270Ω " ½W	1C
R523	3.3Ω "	2D
R524	10Ω "	2D
R525	1KΩ ± 5% ¼W	2D
R526	68KΩ "	2B
R527	2.7KΩ "	2A
R528	15KΩ "	2B
R529	3.9KΩ "	2B
R530	15KΩ "	2A
R531	470KΩ "	2A
R532	680Ω "	2B
R533	470Ω "	1A
R534	680Ω "	1B
R535	1.5KΩ "	1B
R536	1.2KΩ "	1B
R537	3.9KΩ "	1B
R538	3.9KΩ "	2A
R542	220Ω	2B
R543	220Ω	2A
R544	220Ω	1A
R545	220Ω	1A
R546	33Ω	1B
R549	68KΩ	1B
R551	120Ω "	2A
R552	0.27Ω ± 5% 2W	2A
R553	0.27Ω "	1C
R554	120Ω ± 5% ¼W	1D
R555	68KΩ	1C
R556	10Ω	1B
R561	270Ω ± 5% ½W	1A
		2C
		2B
		1A
		2A

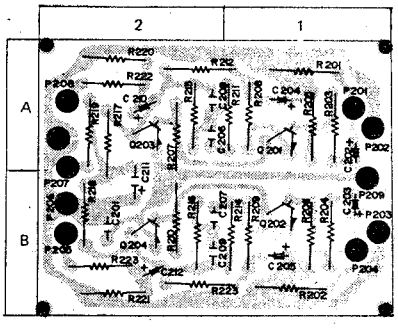
Symbol	Description	Location
C501	470PF	2C
C502	0.47μF 50WV	2C
C503	1μF 50WV	2C
C504	10μF 10WV	2D
C506	39PF	2D
C507	22μF 35WV	2C
C508	0.047μF	2D
C509	1μF 50WV	2B
C510	470PF	2B
C511	0.47μF 50WV	2B
C512	10μF 10WV	2A
C514	39PF	2A
C515	22μF 35WV	1B
C516	0.047μF	2A
C517	0.02μF	1C
C518	0.02μF	1B
C520	1μF 50WV	2B
C521	0.02μF	1D
C522	0.02μF	2B
Q501	2SC 732	1C
Q502	2SC 732	1C
Q503	2SA 777	2D
Q504	2SC 1509	1D
Q505	2SD 586	1D
Q506	2SC 734	1D
Q507	2SC 828	1CD
Q508	2SA 561	2C
Q509	2SA 777	1C
Q510	2SB 616	1C
Q511	2SC 732	2B
Q512	2SC 732	2B
Q513	2SA 777	2B
Q514	2SC 1509	1A
Q515	2SD 586	1A
Q516	2SC 734	1A
Q517	2SC 828	1AB
Q518	2SA 561	2B
Q519	2SA 777	1B
Q520	2SB 616	1B
L501	2.7μH Choke	2D
L502	2.7μH Choke	2A
D501	MZ 11B Zener	2BC
D502	MA 150	2A
D503	MA 150	2C
D504	MA 150	2B
D505	MA 150	2D
J501-3	Jump Wire	



S1099B Pre Amp B.D.

Symbol	Description	Location
R305	100KΩ ± 5% ¼W	2A
R306	3.9KΩ "	2A
R307	18KΩ "	1B
R308	18KΩ "	1A
R309	10KΩ "	1B
R310	4.7KΩ "	1A
R311	47KΩ "	1A
R312	1KΩ "	1B
R313	8.2KΩ "	2A
R314	68KΩ "	1B
R315	4.7KΩ "	1B
R316	560Ω "	1A
R317	5.6KΩ "	1B
R318	56KΩ "	2A
R319	1KΩ "	1A
R320	18KΩ "	2B
R321	18KΩ "	1B
R322	10KΩ "	1B
R324	4.7KΩ "	2B
R325	100KΩ "	2B
R327	3.9KΩ "	2B
R330	8.2KΩ "	2A
R331	82KΩ "	1B
R332	5.6KΩ "	1B
R333	560Ω "	1A
R334	68KΩ "	1B
R335	4.7KΩ "	1B
R336	1KΩ "	1A
R337	47KΩ "	1A
R338	1KΩ "	1A
R339	1KΩ "	1B
R340	56KΩ "	2B
R341	47KΩ "	2B
R342	82KΩ "	1B
R343	100Ω "	2A

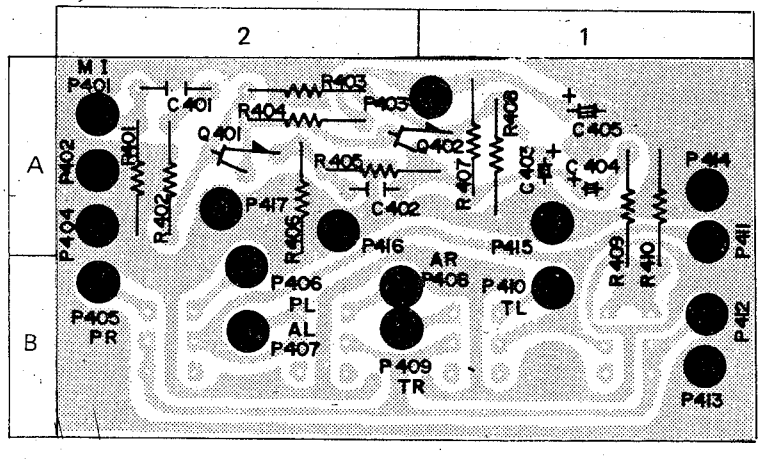
Symbol	Description	Location
C303	2.2μF 16WV (T)	2B
C304	47PF ± 10%	2B
C305	47μF 6.3WV	2B
C306	10μF 10WV	2B
C307	10μF 16WV	1B
C308	10μF 25WV	2A
C309	0.47μF 16WV(T)	1B
C310	0.02μF ± 5% (M)	2B
C311	0.02μF "	2B
C322	0.0022μF ± 5% (M)	1B
C324	100μF 25WV	1B
C325	100μF 16WV	2A
C331	2.2μF 16WV (T)	2A
C332	87PF ± 10%	2A
C333	47PF 6.3WV	2A
C334	10μF 10WV	2A
C335	0.02μF ± 5% (M)	2B
C336	0.02μF ± 5% (M)	2B
C338	10μF 16WV	1B
C339	0.0022μF ± 5% (M)	1B
C340	"	1B
C341	"	1B
C342	0.47μF 16WV (T)	1B
Q301	2SC 1681	2A
Q302	2SA 841	2A
Q303	2SA 841	1B
Q304	2SC 1681	2B
Q305	2SA 841	2B
Q306	2SA 841	1B
Q307	2SA 564	1A



S1008K EQ B.D.

Symbol	Description	Location
R201	220KΩ ± 5% ¼W	1A
R202	220KΩ "	1A
R203	4.7KΩ "	1A
R204	4.7KΩ "	1A
R205	56KΩ "	1A
R206	56KΩ "	1B
R207	27KΩ "	2A
R208	560Ω "	1A
R209	560Ω "	1B
R210	27KΩ "	2B
R211	33KΩ "	1A
R212	100KΩ "	2A
R213	100KΩ "	2B
R214	33KΩ "	1B
R215	820KΩ "	2A
R216	820KΩ "	2B
R217	15KΩ "	2A
R218	15KΩ "	2B
R219	3.3KΩ "	2A
R220	220KΩ "	2A

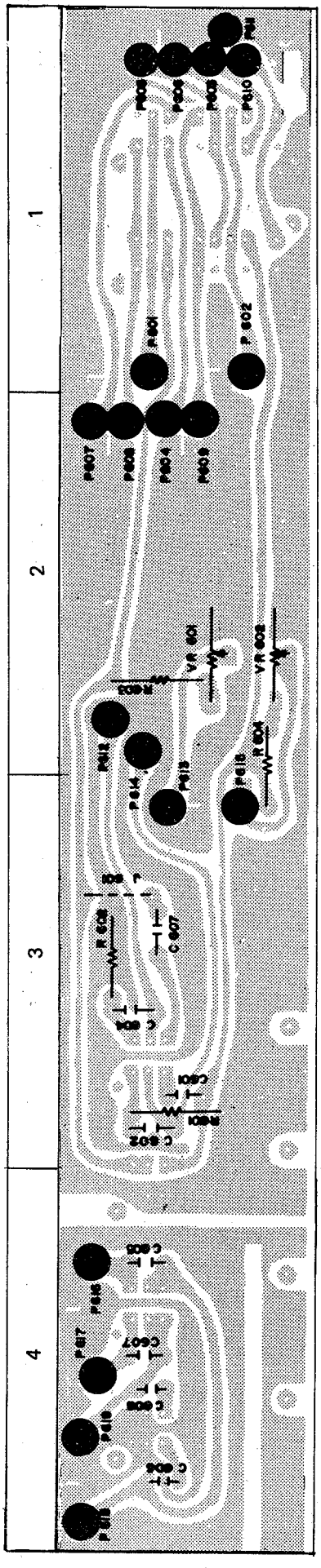
Symbol	Description	Location
R221	220KΩ "	2B
R222	4.7KΩ "	2A
R223	4.7KΩ "	2B
C201	4.7μF 16WV	2B
C202	4.7μF 16WV	1A
C203	4.7μF 16WV	1B
C204	100μF 10WV	1A
C205	100μF 10WV	1B
C206	0.0022μF ± 5% (M)	2A
C207	0.0022μF "	2A
C208	0.0082μF "	2A
C209	0.0082μF "	2B
C210	4.7μF 16WV	2A
C211	100μF 25WV	2B
C212	4.7μF 16WV	2B
Q101	2SC 1681	1A
Q102	2SC 1681	1B
Q103	2SA 841	2A
Q104	2SA 841	2B



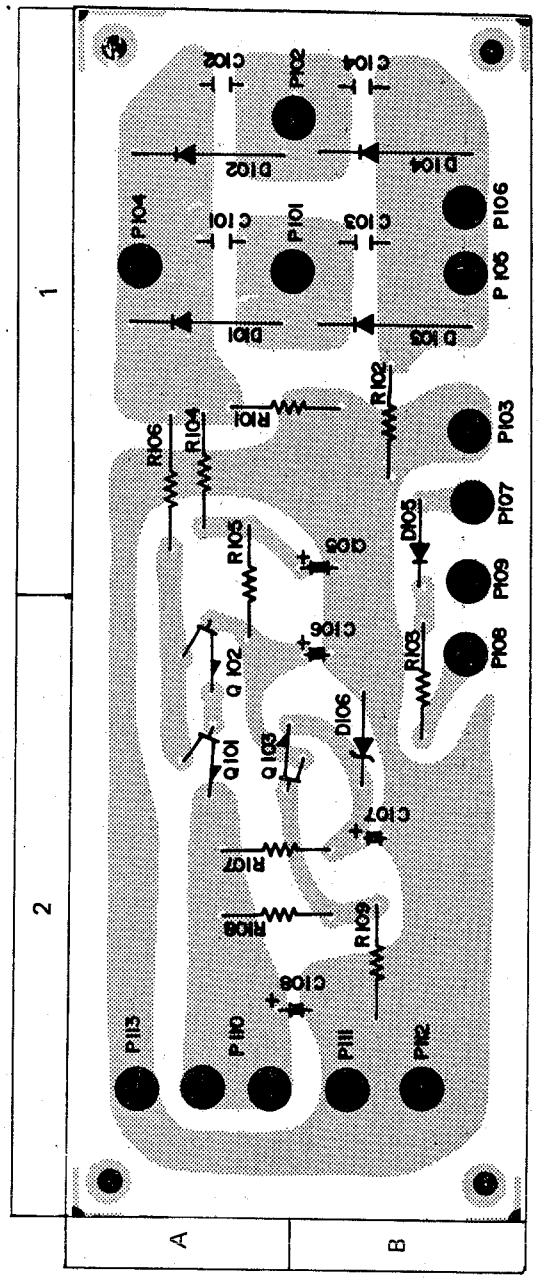
S1093D Mic & SW. B.D. ▸

Symbol	Description	Location
R401	3.3KΩ ± 5% ¼W	2A
R402	3.9KΩ "	2A
R403	47KΩ "	2A
R404	56KΩ "	2A
R405	220KΩ "	2A
R406	2.2KΩ "	2A
R407	8.2KΩ "	1A
R408	1.5KΩ "	1A
R409	3.3KΩ "	1A
R410	220KΩ "	1A
C401	0.047 $^{+80}_{-20}$	2A
C402	100PF ± 10%	2A
C403	100μF 10WV	1A
C404	4.7μF 16WV	1A
C405	100μF 16WV	1A
Q101	2SC 1681	2A
Q102	2SC 732	1A

S1092B SW. B.D.



Symbol	Description	Location
R601	5.6KΩ ± 5% ¼W	3
R602	5.6KΩ "	3
R603	10KΩ "	2
R604	10KΩ "	2
C601	330PF ± 10%	3
C602	0.068μF ± 5% (M)	3
C603	330PF ± 10%	3
C604	0.068μF ± 5% (M)	3
C605	0.01μF ± 5% (M)	4
C606	0.0068μF "	4
C607	0.01μF "	4
C608	0.0068μF "	4
VR601	100KΩ (A) ½	2
VR602	"	
J601	Jump Wire	3



S1094D Supply B.D.

Symbol	Description	Location
R101	4.7KΩ ± 5% ¼W	1A
R102	4.7KΩ "	1B
R103	270Ω "	2B
R104	10KΩ "	1A
R105	10KΩ "	1A
R106	100Ω ± 5% ½W	1A
R107	4.7KΩ "	2A
R108	1KΩ	2A
R109	1.2KΩ	2B
C101	0.0047μF	1A
C102	"	
C103	"	
C104	"	
C105	100μF 25WV	1B

Symbol	Description	Location
C106	10μF 16WV	2B
C107	10μF 10WV	2B
C108	100μF 16WV	2A
D101	30DI	1A
D102	"	1A
D103	"	1A
D104	"	1B
D105	MA 161	1B
D106	HZ 7B Zener	2B
Q101	2SC 1161	2A
Q102	2SC 732	2A
Q103	2SC 733	2A